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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	
Federal-State Joint Board on Universal Service	CC Docket No. 96-45
Forward-Looking Mechanism for High Cost Support for Non-Rural LECS	CC Docket No. 97-160

REPLY COMMENTS OF BELL ATLANTIC[1] ON INPUTS, EXPENSES, AND OTHER ISSUES

The comments that were filed on input values and the remaining platform issues conclusively demonstrate that the record does not provide an adequate basis on which to adopt a final proxy model. The sponsors of the Benchmark Cost Proxy Model ("BCPM") did not submit proposed inputs, because they have devoted all of their efforts to platform issues.[2] The sponsors of both the BCPM model and the Hatfield model intend to release new versions of their models in the future to take into account issues raised in this

[1] The Bell Atlantic telephone companies ("Bell Atlantic") are Bell Atlantic-Delaware, Inc.; Bell Atlantic-Maryland, Inc.; Bell Atlantic-New Jersey, Inc.; Bell Atlantic-Pennsylvania, Inc.; Bell Atlantic-Virginia, Inc.; Bell Atlantic-Washington, DC, Inc.; Bell Atlantic-West Virginia, Inc.; New York Telephone Company; and New England Telephone and Telegraph Company. Attachment 1 hereto provides Bell Atlantic's reply to the comments on input values and remaining platform issues.

[2] ***See*** Joint Comments of BellSouth, US West, and Sprint Local Telephone Companies ("Joint Sponsors") at p. 3.

proceeding.[3] Until these new versions of the models, with inputs, are available for testing and evaluation, it is impossible to determine whether they produce reasonable results. In addition, any hybrid of the two models that is adopted by the Commission would need to be evaluated by all parties. The record clearly is insufficient at this stage to reach a final conclusion about the platform or inputs for a proxy model.

The comments in this round of the proceeding also reinforce Bell Atlantic's view that the Commission should not use a proxy model to develop universal service costs, or for any other regulatory purpose. The basic problem with a proxy model is that it can produce any results the designer intends, and it can be manipulated easily to produce regulatory disallowances based on arbitrary assumptions. Since a proxy model is based on a hypothetical network that does not exist, and will never exist, it can incorporate assumptions and inputs that have no connection with reality. As GTE points out, the sponsors of the Hatfield model, having an obvious self-interest in reducing the amount of costs that can be recovered by the local exchange carriers, have deliberately and repeatedly modified the model platform and inputs to produce unreasonably low cost outputs.[4] The attached exhibit, which contains testimony Bell Atlantic filed recently in a state proceeding, confirms GTE's observation that each iteration of the Hatfield model has included unexplained and unsupported adjustments designed to maintain the same

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[3] ***See*** *id.* at p. 2, n.2; AT&T/MCI at p. 5.
[4] ***See*** GTE at pp. 2-4.

bottom line costs, despite alleged "improvements" in the model.[5] As a result, the Hatfield model does not accurately measure the forward-looking costs that a LEC is likely to incur, a fact that has led many states to reject the model.[6]

This highlights the danger in using a proxy approach to develop the amount of support that real carriers, in the real world, need to provide universal service to real customers. The Commission should abandon the proxy model approach and rely, instead, on the local exchange carriers' actual costs to determine universal service support levels.

If the Commission nonetheless adopts a proxy model, it should not use the default inputs proposed by AT&T/MCI. The Hatfield model inputs continue to be based upon unsubstantiated "Hatfield Associates estimates," "consultations with AT&T and MCI subject matter experts," and other vague references to sources that cannot be examined or verified.[7] The clear self-interest of these sources in producing low-cost estimates, and their obvious lack of direct responsibility for design and operation of the LEC network, negates any reliance on the Hatfield inputs to calculate universal service support. In addition, many costs that clearly vary by state are assumed by Hatfield to have a uniform

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[5] ***See*** Attachment 2, Rebuttal Testimony of Timothy J. Tardiff before the New Jersey Public Service Commission, Docket No. TX95120631, filed October 20, 1997. For instance, while the amount of distribution plant doubled between release 2.2 and later releases of the Hatfield model, structure costs actually decreased for New Jersey, because the sponsors incorporated changes in unit cost inputs that reduced the structure cost per route foot by over 70 percent. ***See id.*** at pp. 15-16.

[6] ***See id.*** at p. 5.

[7] ***See, e.g.,*** AT&T/MCI, Appendix: Hatfield Model Release 4.0 Inputs Portfolio, Sections 3.6, 4.1.4, 4.1.7, 4.2.3, 5.4.5, 5.4.9.

input value that varies only by factors such as density.[8] If the Commission adopts a model, it should give the LECs an opportunity to populate the model inputs using actual company-specific and state-specific data, subject to another round of comments.

Respectfully submitted,

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[8] ***See, e.g., id.*** at Sections 4.2.5, 4.2.6 (applying the same density-related construction and land costs throughout the nation).

III.C.2(d) Structure Sharing Input Values (paras. 80-82)

AT&T/MCI incorrectly assume that two thirds of costs of aerial, buried, and underground loop infrastructure will be used by utilities other than the LEC.[1] This sharing percentage vastly exceeds the actual level that the LECs have been able to achieve. In the Bell Atlantic states, the LEC portion of shared infrastructure varies from 72 - 99% for conduit and 38 - 55% for poles. Very little of Bell Atlantic's buried cable currently is shared with other utilities.

The unrealistic sharing percentages in the Hatfield model contribute to a gross underestimate of total costs. For example, in New Jersey, the Hatfield model produces costs that are less than one half of Bell Atlantic-New Jersey's current costs.[2] The cost reductions incorporated in the Hatfield model, such as the assumption that the LECs will radically increase their ability to share infrastructure, are too extreme to be real and should not be presented as the costs that an "efficient" carrier would be likely to incur.

III.C.2(g)(5) Fill Factors and Utilization (para. 119)

The Hatfield model also understates costs by assuming excessively high "fill" factors of 50 to 75 percent for distribution cable and 65 to 80 percent for feeder cable.[3] This is based on opinion, with no documented support. AT&T/MCI argue that higher fill

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[1] ***See*** AT&T/MCI at p. 8; Appendix, p. 107 & Appendix B.
[2] ***See*** Attachment 2, pp. 6-7.
[3] ***See*** AT&T/MCI at pp. 13-14; Appendix, pp. 36, 55.

factors are achievable because there is less instability in demand associated with universal service for residential and single line businesses. However, AT&T and MCI are incorrect in suggesting that a subset of services, such as those that are included in the definition of universal service, is provisioned separately from the rest of the network. This is contrary to how the network is designed. Fill factors reflect the engineering of outside plant to provide quality service to all customers and to install new lines on demand. The high fill factors in the Hatfield model would impair the ability of the LECs to meet demand with quality service. In a competitive environment, this would encourage customers to seek alternative suppliers. The Commission should not assume that the LECs will be able to increase their fill factors in the future. Accordingly, the Commission should use actual LEC fill factors as inputs to a proxy model.

III.C.3(c) Switch Cost Input Values (para. 132)

Despite the Commission staff's advice that model proponents should develop separate cost curves for host, remote, and stand alone switches,[4] the Hatfield model still only has two cost curves for all types of switches -- one for large companies and one for small companies.[5] Their contention that this includes the impact of the increasing use of host/remote switches in the network does not alter the fact that the Hatfield model does not, and apparently will not, separately identify the costs of host, remote and stand alone

[4] ***See*** Public Notice, DA 97-1912, September 3, 1997, p. 3.
[5] ***See*** AT&T/MCI at pp. 16-17.

switches. As the staff observed, host switches generally cost more than stand alone switches, and remote switches generally cost less than stand alone switches. Identification of areas where a combination of host and remote switches would be more cost-effective than stand alone switches is essential in distinguishing high cost areas from low cost areas. The Hatfield model will not do this accurately because it uses average switch costs in all areas. For this reason, the Commission cannot rely on the Hatfield model for an accurate estimate of switch costs in a proxy model.

The Hatfield model also continues to ignore the fact that growth lines cost more than new lines.[6] AT&T/MCI again argue that any additional costs for growth lines are offset by the time value of money. This misses the point. No network is built instantly. As demand grows, switch capacity is added to accommodate that demand, so that costs are not incurred prior to the time that revenues are sufficient to recover those costs. For this reason, carriers cannot afford to purchase excess capacity with the initial switch order, despite the fact that the cost per-line of adding new lines at a later date will be higher than the cost per-line of including the additional capacity with the initial switch purchase. Any network in the real world, at any given point in time, will have a mix of the costs of initial switches and growth lines. By ignoring the higher costs of growth lines, the Hatfield model systematically and significantly understates switch costs.

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[6] ***See id.*** at pp. 18-19.

The Commission tentatively decided to adopt its staff estimates of switch costs, which are based on data from LEC depreciation studies.[7] AT&T/MCI advocate use of data from a Northern Business Information ("NBI") study of LEC switch purchase prices.[8] Neither of these sources truly captures forward-looking switch costs, since they reflect the discounts that the LECs obtained for massive replacements of analog switches with digital switches in the past. The LECs are likely to obtain lower discounts in the future as they purchase fewer new switches and incur the higher costs of adding capacity for growth lines to existing switches. Accordingly, the Commission should use current LEC pricing data for new switches and add-ons.

III.C.3(d) Percent of Switch Assigned to Port and to Provision of Universal Service (paras. 135-37)

AT&T/MCI advocate use of a fixed 30 percent factor to assign switch investment to the port, citing New York and Massachusetts state cost studies.[9] However, the state studies produced factors that varied by 79 percent, which reflected the different mix of switches in each state. The amount of switch costs that are associated with individual end user lines varies by manufacturer. The Nortel DMS switch design tends to have a greater incremental investment associated with line ports, while the Lucent 5ESS tends to have a

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[7] ***See*** *FNPRM* at para. 132.
[8] ***See*** AT&T/MCI at pp. 15-16.
[9] ***See*** *id.* at pp. 19-20.

distributed design with less incremental investment associated with individual lines. In addition, the usage characteristics of an end office affect the types and amount of line equipment that can be installed. To accurately estimate the amount of port costs, the Commission should use state-specific data that reflect the types of switches used in each state.

III.C.7(c) Plant Non-Specific Expenses Platform Design and Input Values (para. 165)

AT&T/MCI provide nothing but speculation to support their proposal that the Commission should eliminate 50 percent of the LECs' actual plant non-specific expenses in estimating costs for a proxy model.[10] They argue that plant specific expenses should be reduced because of (1) advancements in technology; (2) reduced power due to digital equipment, increased centralization of plant, and increased competition in the electricity industry; (3) a "growing tendency" for equipment vendors to provide installation and maintenance, which allegedly reduces the need for LEC engineers; (4) a trend of declining network expenses in recent years; and (5) recovery of some costs through nonrecurring charges.

This grab bag of arguments cannot disguise the fact that the 50 percent number is completely arbitrary, with no apparent justification other than AT&T/MCI's desire to grossly underestimate LEC costs. They provide no data to back up this number, other

[10] ***See id.*** at pp. 26-28. The Hatfield model applies 50 percent of the plant non-specific expenses in the LECs' ARMIS reports on a per-line basis.

than the unsupported opinions of their paid experts.[11] While a network designed through a hypothetical proxy model undoubtedly would have different expenses than the existing network, model proponents cannot avoid their obligation to justify the amount of expenses that would be incurred. The Hatfield model clearly fails in this respect.

III.C.7(d) Customer Services Design and Input Values (para. 168)

The Hatfield model improperly excludes marketing expenses from Customer Service expenses, based on the simple notion that the LECs do not need to incur traditional marketing expenses, such as advertising, to provide basic universal service.[12] This is inconsistent with the way that the universal service fund will operate, and with the assumptions underlying a forward-looking cost model. First, the Commission's rules *require* eligible carriers to advertise the availability of services supported by the federal universal service support mechanisms through media of general distribution.[13] Moreover, the Act, and the Commission's decisions, contemplate a competitive environment in which more than one carrier will offer universal service. No carrier can operate in a competitive environment without incurring marketing expenses. The primary rationale for a forward-looking cost model is to replicate the costs that the LECs would incur in a competitive environment.[14] This suggests that the LECs would incur more, not less,

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[11] ***See*** *id.* at Appendix, p. 109 & App. D.
[12] ***See*** *id.* at p. 28.
[13] ***See*** 47 C.F.R. Section 54.201(d).
[14] ***See*** Federal-State Joint Board on Universal Service, CC Docket No. 96-45, Report and Order (rel. May 8, 1997), paras. 224-229.

marketing costs than they have in the past under monopoly conditions. Therefore, there is no basis for removing marketing expenses from a proxy model.

III.C.7(e) Corporate Operations Expense Platform Design and Input Values (para. 171)

The Hatfield model continues to estimate corporate operations expense as 10.4 percent of direct expenses, based on data from AT&T's financial records.[15] AT&T/MCI argue that this is more indicative of costs in a competitive market than using data from the LECs' ARMIS reports, because AT&T provides service in a competitive market and has had the "discipline ... to restrain its corporate expenses." However, the price cap system has given the LECs a strong incentive to reduce their overhead expenses, as evidenced by the deep and continuing reductions in administrative personnel that all of the LECs have implemented. AT&T's data is not relevant, since AT&T does not operate a local exchange network, and it cannot be considered representative of the forward-looking costs of a provider of universal service.[16] It is also arbitrary to choose one characteristic of AT&T's cost structure, while ignoring other characteristics that would produce higher costs in a proxy model. For instance, AT&T/MCI conveniently overlook the fact that AT&T has a much higher depreciation rate and higher expense factors for digital switches, circuit equipment, and network operations than the default inputs used in

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[15] ***See*** AT&T/MCI at pp. 28-29.

[16] In addition, AT&T's overhead ratio is incorrectly calculated. AT&T/MCI used a ratio of overhead expenses to revenues, not to total operating costs. This was revealed during cross examination of AT&T's witness in Maryland arbitration hearings. ***See*** Public Service Commission of Maryland, Case No. 8731, Phase II, hearings held April 17, 1997.

the Hatfield model.[17] The Commission should reject AT&T's arbitrary overhead cost factor, and it should rely upon actual data from the LEC ARMIS reports.

III.C.6 Depreciation Input Values (paras. 152-153)

As Bell Atlantic and others have demonstrated, the Commission cannot use its currently prescribed asset lives and salvage values to model forward-looking depreciation costs in a competitive environment.[18] Those rates were established under a monopoly environment, where recovery of investment was within the Commission's control through its ratemaking power. In a competitive environment, the Commission cannot guarantee cost recovery. Prices will be set by the market, and a LEC will not be able to recover the cost of equipment that has exceeded its economic life.

This fact seems to have escaped AT&T and MCI. Not only do they argue that the Commission should use its currently-prescribed depreciation rates for a proxy model, they claim that the LECs will have an incentive to extend the lives of equipment in order to gain the greatest profit from the equipment already deployed.[19] This is totally unrealistic, and it cannot be squared with the concept of forward-looking costs. In a competitive market, a supplier will use economically obsolete plant only if it does not have the financial capability to update its plant. Basically, this describes a declining company that will run its existing plant into the ground until revenues fall below

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[17] ***See*** Attachment 2 at pp. 25-26.
[18] ***See, e.g.,*** Bell Atlantic at pp. 3-5; GTE at pp. 38-40.
[19] ***See*** AT&T/MCI at iv, 23.

operating costs, after which it will cease operations. Even the Hatfield model does not assume that the LECs are so financially distressed that they will not be able to upgrade the network. Moreover, a forward-looking cost model does not assume that the LECs will use equipment that is "already deployed." Rather, a forward-looking model is based on the costs of building new plant with the latest technology. Such a model, if used to determine the costs of universal service, must reflect the economic lives of such equipment in a competitive environment. Anything less fundamentally contradicts the premise of a proxy model approach.

Use of currently prescribed equipment lives and future net salvage levels would not reflect the forward-looking economic cost of providing service in a competitive environment. These prescriptions are based on ranges approved by the Commission in Docket 92-296, based on data from the early 1990s, and they do not reflect current equipment life expectations. Further, as the ranges were approved prior to passage of the Telecommunications Act of 1996, they do not incorporate the effects of the current and future telecommunications environment. The Commission should use depreciation rates for a proxy model that reflect today's combination of rapid technological change and increasing competition.

IV. Support for Local Usage (paras. 178-181)

Several commenters, primarily wireless providers, express concern about inclusion of a local usage component in a universal service proxy model.[20] They argue that the Commission should not assume a large, or unlimited, amount of local calling as a requirement for an eligible carrier to receive support from the interstate universal service fund, because this would exclude wireless carriers, who have much higher traffic sensitive costs than wireline carriers.

At the outset, the Commission should distinguish between the amount of usage that is assumed in determining (1) the amount of universal service support; and (2) a carrier's eligibility to receive support from the interstate universal service fund.[21]

With regard to the first issue, the Commission clearly needs to make assumptions about traffic levels in order to calculate the amount of universal service support. Both local and toll traffic levels determine the size of the switch and the amount of interoffice facilities. Likewise, the Commission needs to identify an amount of local usage that will

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[20] ***See, e.g.,*** Sprint Spectrum at pp. 3, 5-9; CTIA at pp. 2-6; AirTouch at pp. 3-14.

[21] AT&T/MCI cite Bell Atlantic as having recommended a 500 minute-per-month local usage component, referencing the *FNPRM* at note 281. ***See*** AT&T/MCI at p. 34, n.45. However, the Bell Atlantic document that was referenced in the *FNPRM* incorporated average usage data from the Commission's Industry Analysis Division for purposes of calculating the amount of universal service funding. It did not constitute a proposal about the amount of usage that a carrier should provide as a condition of eligibility for universal service support.

be included in the definition of universal service to determine the amount of costs per line that will be supported.

While the total amount of usage that is assumed in quantifying the costs of switches and interoffice facilities, which will reflect the economy of scale of the network, need not be the same as the amount of local usage that will be included in the definition of universal service for funding purposes, the Commission should use the same amounts of usage regardless of whether it is modeling wireline or wireless costs. In determining the amount of support, the Commission should use a least-cost analysis. Wireline service costs should be assumed except where a wireless solution, such as fixed or mobile cellular service, is shown to be more cost effective. The only way to compare the costs of wireline with wireless service is to assume the same amount of usage for both technologies. Otherwise, wireless service, which has low fixed costs but high usage costs, would appear less expensive even though it would not be affordable to the average customer.

The second question is whether an eligible carrier must make the same level of local usage available for "free," or at no extra charge, to a residential or single line business customer in order to receive universal service funding for that customer. The wireless carriers are worried that the states would require them to offer an option of unlimited local calling, as they have in many areas for the incumbent local exchange

carriers.[22] They argue that this would be prohibitively expensive for wireless carriers, and that it would not recognize that a wireless carrier's "local" calling area often encompasses an area for which the wireline carrier imposes toll charges.

Clearly, the states have sole authority, under Section 214(e) of the Act, to determine if a carrier is eligible to receive universal service support. However, the Commission is responsible for defining universal service, and for determining what services a carrier must provide in order to receive funding from the interstate universal service fund.[23] If the Commission does not establish the amount of local usage that an eligible carrier must provide, a carrier could seek funding even where its high usage charges make its service unaffordable for the average consumer. The Commission should not make funding available for premium, discretionary services. Accordingly, the Commission should adopt a minimum level of usage that a carrier, whether wireless or wireline, should provide as part of a basic package of services to be eligible to receive support from the interstate universal service fund.

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[22] ***See, e.g.,*** AirTouch at p. 5.
[23] ***See*** 47 U.S.C Section 254(c), (e).

ATTACHMENT 2

BELL ATLANTIC - NEW JERSEY, INC.

REBUTTAL TESTIMONY OF TIMOTHY J. TARDIFF

Universal Service

Docket No. TX95120631

October 20, 1997

BELL ATLANTIC - NEW JERSEY, INC.

REBUTTAL TESTIMONY OF TIMOTHY J. TARDIFF

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BELL ATLANTIC - NEW JERSEY, INC.

REBUTTAL TESTIMONY OF TIMOTHY J. TARDIFF

I. INTRODUCTION AND SUMMARY

Q. PLEASE STATE YOUR NAME, OCCUPATION, AND BUSINESS ADDRESS.

A. My name is Timothy J. Tardiff. I am a Vice President at National Economic Research Associates, 1 Main Street, Cambridge, MA 02142.

Q. BRIEFLY SUMMARIZE YOUR QUALIFICATIONS AS THEY PERTAIN TO THIS TESTIMONY.

A. I received a B.S. degree from the California Institute of Technology in mathematics (with honors) in 1971 and a Ph.D. in Social Science from the University of California, Irvine in 1974. From 1974 to 1979, I was a member of the faculty at the University of California, Davis. I have specialized in telecommunications policy issues for about the last 15 years. My research has included studies of the demand for telephone services, such as local measured service and toll; analysis of the market potential for new telecommunications products and services; assessment of the growing competition for telecommunications services; and evaluation of regulatory frameworks consistent with growing competitive trends.

I have extensive experience as a consultant and expert witness in regulatory proceedings. I have filed testimony and reports on behalf of Pacific Bell before the California Public Utilities Commission on incremental cost principles, rules for local competition, universal service funding, open access and network architecture, regulation of wireless telecommunications services, the treatment of accounting changes for post-retirement benefits under price caps, the review of California's price cap plan, and flexible pricing for Centrex service. I undertook studies and submitted reports on behalf of Pacific Bell before the Federal Communications Commission on price cap productivity, access to intelligent networks, interconnection pricing policies, and the treatment of accounting changes for post-retirement benefits under price caps. I have also testified for GTE North on intraLATA presubscription before the Illinois

Commerce Commission, and filed a report with the New York Public Service Commission on intraLATA presubscription on behalf of New York Telephone. Recently, I have testified in state proceedings and/or arbitrations (pursuant to the Telecommunications Act of 1996) on local network unbundling in the District of Columbia, Maryland, California, New York, Pennsylvania, Texas, Missouri, Oklahoma, Indiana, Massachusetts, North Carolina, Virginia, Kentucky, Kansas, and Arkansas. Attachment 1 is a copy of my resume.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to respond to the direct testimony on behalf of AT&T and MCI offered by Dr. Robert A. Mercer, who describes and endorses the most recent version of the Hatfield cost model as the basis for establishing the costs and prices of basic universal service, interconnection services and unbundled network elements for Bell Atlantic-NJ ("BA-NJ"). I will present the results of my analysis of the Hatfield Model and describe a number of flaws I have identified.

Q. WHAT IS YOUR PRINCIPAL CONCLUSION?

A. The Hatfield Model -- in this variation called "4.0" or any of its previous incarnations -- does *not* provide a proper basis for establishing valid and reliable forward-looking costs. Consequently, basing *any* price on such costs -- basic universal service, unbundled network elements or interconnection services -- would be incorrect, either in New Jersey or anywhere else. The principal failing of the Hatfield Model is that, despite Dr. Mercer's claims to the contrary, it does not estimate or even seriously attempt to measure the forward-looking costs that BA-NJ, as an efficient local exchange carrier ("LEC"), is likely to incur. Nor does it reflect the likely costs of any competitor's efficient forward-looking network. It instead generates costs for a mythical "efficient carrier" that has no basis in reality and will never attempt to open its doors for business. Any universal service fund established based on such "cost" results would *not* reflect the cost of the resources that will likely be used by any efficient LEC. In particular, by assuming levels of efficiency that no carrier can or will attain, the Hatfield Model produces costs that are significantly lower than those any efficient carrier operating in BA-NJ's service territory could ever be expected to incur. Thus, using the

Hatfield Model to determine the cost of universal service and establish necessary funding levels would distort resource allocation and harm economic efficiency. In particular, such a fund would not provide BA-NJ (or other efficient carriers) adequate compensation for providing universal service. Thus, carriers would be discouraged from serving high cost areas and the ability of BA-NJ to continue to provide advanced telecommunications services to all customers would be jeopardized.

Accordingly, the Board should not adopt the Hatfield Model for the purpose of establishing universal service support.

Q. DO YOU BELIEVE THAT DISAGREEMENTS OVER THE RESULTS GENERATED BY THE HATFIELD MODEL ARE MAINLY ATTRIBUTABLE TO DISPUTES OVER INPUTS, AND THAT THE ACTUAL MODELS CHOSEN TO "RUN" THOSE INPUTS ARE OF LITTLE CONSEQUENCE?

A. No. Correct inputs are certainly very important -- both common sense and economic theory dictate that correct prices can only result from the use of correct inputs. There are problems with the Hatfield Model, however, that run deeper and have nothing to do with inputs. In other words, even if all inputs were valid, the model would still generally produce incorrect cost estimates. In particular, both the current and earlier versions of the Hatfield Model are based on an inaccurate representation of loop plant. Consequently, when critical Hatfield default inputs are changed to approximate company-specific values, Hatfield's cost of basic universal service can differ substantially from those produced by the company's studies. While Dr. Mercer would have you believe that this can be explained as the difference between an efficient forward-looking network and an inefficient monopoly provider network, he has done virtually nothing to verify his results in the real world.[1]

Q. WHAT IS YOUR CONCLUSION REGARDING THE USE OF THE HATFIELD MODEL IN THIS PROCEEDING?

[1] Comments of AT&T and MCI on Customer Location Issues, submitted to the FCC, September 2, 1997.

A. I have concluded that the Hatfield Model's costs are inappropriate for use by the Board for the following reasons:

1. The Hatfield Model does *not* accurately reflect how any efficient firm would operate in the real world -- particularly one operating in the environment characterized by technological change and the increased risk and competitiveness that will result from the Telecommunications Act of 1996.

2. In the Hatfield Model, there are fundamental inaccuracies in certain engineering assumptions, certain important costs have been inappropriately excluded, and particular input prices are much too low -- all resulting in substantially underestimated costs of basic service.

3. The Hatfield Model does not properly account for operating expenses and common overhead costs.

4. The Hatfield Model is a results-driven moving target (seven variations having been offered over the last year and a half and a new version is currently being developed), with each new change involving substantial differences in the way network costs are generated.[2] Yet, despite the "substantial revisions" to the model in New Jersey, the loop "costs" and total "costs" results produced by all of the permutations of the Hatfield Model have remained substantially the same in New Jersey.

Q. WHAT IS THE BASIS FOR YOUR ANALYSIS?

A. Over the last year and one-half, I have devoted considerable time to evaluating the successive versions of the Hatfield Model.[3] Since Release 2 became available in late August 1996, I have spent a considerable portion of my professional time reviewing the documentation, inspecting inputs and outputs, examining specific calculations in the model, and testing the sensitivity of

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[2] As I describe in detail below, compared to Version 2.2 presented to the Board in 1996, the current version (1) has completely revamped the representation of distribution plant in a way that substantially increases the amount of support structures (poles, etc.), but (2) offsets these increases by large reductions in the average prices for these structures and the price of copper cable.

[3] The FCC Order summarized my criticism of Release 1 of the Version 2.2 of the Hatfield Model. *In the Matter of Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, CC Docket No. 96-98 (rel. August 8, 1996) ("Interconnection Order") at ¶831. The Order also concluded that these and other criticisms of the Hatfield Model ". . . may have merit." (Interconnection Order at ¶795) Contrary to the implication in Dr. Mercer's testimony that the Hatfield Model fully complies with the FCC's TELRIC directives, the FCC's recent Universal Service Decision recently stated that "[b]ased on these problems with the models [including Hatfield 3.1], we conclude that we cannot use any of the models at this time as a means to calculate the forward-looking economic cost of the network. . ." (*In the Matter of Federal-State Joint Board on Universal Service*, CC Docket 96-45 (rel. May 8, 1997) at ¶245).

the model. I have performed similar tests on Release 3.1, after its February 28, 1997 release,[4] as well as the modified versions of Release 3.1 that have been released in a number of states since April 11, 1997. This activity has formed the basis of testimony I have presented in interconnection arbitrations and state costing proceedings in several other states, including the District of Columbia, Maryland, Pennsylvania, Texas, Missouri, Oklahoma, Indiana, Massachusetts, North Carolina, Virginia, Kentucky, Kansas, Arkansas, and California.

Q. HAVE REGULATORS IN THESE STATES COME TO SIMILAR CONCLUSIONS REGARDING THE HATFIELD MODEL?

A. Yes. When presented with a choice, state regulators have rarely adopted the Hatfield Model. In fact, a number of states have explicitly rejected the Hatfield Model or have seriously questioned its validity, based on evidence that is the same as or similar to what I have presented here. For example, the Massachusetts Department of Public Utilities concluded, "it has not been demonstrated that the Hatfield Model presents a good representation of a reconstructed local network."[5] In addition, the New York Public Service Commission criticized the Hatfield Model on the grounds that it relies "heavily on simplifying assumptions that by their nature can never be substantiated and by failing to pay adequate attention to the outside world as it really exists."[6] Similarly, the Pennsylvania Public Utility Commission recently rejected the Hatfield Model, concluding that "we are concerned that the Hatfield Model did not rely on Pennsylvania-specific data for the model inputs, and neither of its sponsors -- AT&T or MCI -- uses the model in setting their own respective prices."[7] Other

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[4] Hatfield Associates, Inc., *Hatfield Model, Release 3.1, Model Description*, February 28, 1997.

[5] Massachusetts Department of Public Utilities, Consolidated Petitions of New England Telephone and Telegraph Company d/b/a NYNEX, Teleport Communications Group, Inc., Brooks Fiber Communications, AT&T Communications of New England, Inc., MCI Communications Company, and Sprint Communications Company, L.P., pursuant to Section 252(b) of the Telecommunications Act of 1996, for arbitration of interconnection agreements between NYNEX and the aforementioned companies, D.P.U. 96-73/74, 96-75, 96-80/81, 96-83, 96-94 – Phase 4, December 4, 1996, p. 26.

[6] State of New York Public Service Commission, Case 95 - C - 0657, Case 94 - C - 0095, Case 91 - 1174, April 1, 1997, p. 116.

[7] Interim Order, Pennsylvania Public Utility Commission, Dockets A-310203F0002, A-310213F0002, A-310236F0002, A-310258F0002, April 10, 1997, p. 20.

states that substantially selected an ILEC fact-based study in preference to the hypothetical Hatfield model include California, Texas, Missouri, Kansas, Arkansas, Florida and Kentucky.[8]

Q. PLEASE DISCUSS HOW THE FLAWS IN THE HATFIELD MODEL EFFECT ITS RESULTS.

A. As a result of the flaws I detail below, the Hatfield Model seriously underestimates the costs of basic exchange service thereby understating the amount of universal service support necessary for New Jersey.[9] Table 1 compares the costs produced by the Hatfield Model with the costs BA-NJ is currently incurring to provide telephone services in New Jersey. In general, the Hatfield Model produces costs that are generally less than ***half of BA-NJ's current costs***, an outcome that defies common sense and sound economics.

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[8] *See e.g.*, Texas P.U.C. Docket Nos. 16189, 16196, 16226, 16285, 16290, Arbitration Award, ("[T]he HCM may neglect many of the costs associated with actually designing, engineering and installing a network. . . . TELRIC costs should reflect the costs the ILEC expects to incur in making network elements available to new entrants. The Arbitrators believe that the Texas-specific SWBT inputs generally best reflect these costs. The inputs assumed by the HCM are much too general to be relied upon in costing SWBT's Texas network."), Order at 28-29; Kentucky Public Service Commission, Case No. 96-440, ("The commission also rejects MCI's proposal to price unbundled network elements at TELRIC cost as calculated by the Hatfield Model."), Order at 22; Florida Public Service Commission, Order No. PSC-96-0811-FOF-TP, June 24, 1996 ("TSLRIC estimates shall be based on the provider's current or prospective network facilities, as opposed to some theoretically optimal network configuration."), Order at 11-12.

[9] The Hatfield Model also significantly understates the costs for unbundled network elements ("UNE's"). Although this phase of this proceeding is dedicated to Universal Service funding, AT&T and MCI are inappropriately recommending that the Board establish UNE rates based on the Hatfield Model.